COURSE DATA

DATA SUBJECT

Code: 43312
Name: Master's final project
Cycle: Master's Degree
ECTS Credits: 18
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
2150 - Master's degree in Advanced Physics	Facultat de Física	1	Indefinite (Individuals)

SUBJECT-MATTER

Degree	Subject-matter	Character
2150 - Master's degree in Advanced Physics	Trabajo Fin de Máster	MASTER THESIS PROJECT

COORDINATION

ZUÑIGA ROMAN JUAN

SUMMARY

This subject represents the first contact of the student with the research work and is addressed to measure the maturity of the student to abord a research problem in the field of physics. Master's Thesis work will be under the supervision of a director of Master's Thesis, and it will deal with one topic related to the research lines offered by the research groups involved in the Master in Advanced Physics and the Physics PhD program.

The subject of the Master Thesis will be in close connection with the specialty and the learning path followed by the student. The content of the Master Thesis must be a deep study of a topic of interest of the specialty. It could be either a research work on a specific topic (theoretical, experimental, educational, etc..), or a exploratory work on one or several hot issues in the scientific community, either theoretical or experimental.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

2150 - Master's degree in Advanced Physics

Analizar una situación compleja extrayendo cuales son las cantidades físicas relevantes y ser capaz de reducirla a un modelo parametrizado.

Comprender de una forma sistemática el campo de estudio de la Física y el dominio de las habilidades y métodos de investigación relacionados con dicho campo.

Concebir, diseñar, poner en práctica y adoptar un proceso sustancial de investigación con seriedad académica.

Elaborar una memoria clara y concisa de los resultados de su trabajo y de las conclusiones obtenidas en el área de la Física.

Estar en disposición para seguir los estudios de doctorado y la realización de un proyecto de tesis doctoral.

Evaluar la validez de un modelo o teoría propuesto por otros miembros de la comunidad científica.

Exponer y defender públicamente el desarrollo, resultados y conclusiones de su trabajo en el área de la Física.

Ostentar la preparación para tomar decisiones correctas en la elección de tareas y en su ordenación temporal en su labor investigadora y/o profesional.

Poseer la capacidad para el desarrollo de una aptitud crítica ante el aprendizaje que le lleve a plantearse nuevos problemas desde perspectivas no convencionales.

Realizar un análisis crítico, evaluación y síntesis de ideas nuevas y complejas en el área de la Física.

Saber modelizar matemáticamente los problemas físicos sencillos nuevos, conectados con problemas conocidos. Ser capaz de expresar en términos matemáticos nuevas ideas.

Saber organizarse para planificar y desarrollar el trabajo dentro de un equipo con eficacia y eficiencia.

Ser capaz de aplicar la experiencia investigadora adquirida para iniciar el desarrollo de la fase investigadora de un programa de doctorado en temas relacionados con la Física y aplicaciones tecnológicas afines.

Ser capaz de gestionar información de distintas fuentes bibliográficas especializadas utilizando principalmente bases de datos y publicaciones internacionales en lengua inglesa.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should demonstrate self-directed learning skills for continued academic growth.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

DESCRIPTION OF CONTENTS

1. Master Thesis

This matter is thought to mean a first contact of the student with research and try to measure the maturity of the student to address a research problem in the area of Physics. Master Thesis work is under the supervision of the director of the Master's Thesis, and will be conected to one of the lines of research that are listed in section 6 and are offered by the research groups involved in the Advanced Master in Physics and Physics Doctorate Program.

The theme of the work will be in close connection with the specialty and the training route followed by the student. The object of it is to be in-depth study of a topic of interest of their specialty. It includes both the research on a specific topic with a theoretical, experimental, educational, etc. guidance, as the modality of exploratory work on one or more appealing topics in the scientific community, whether theoretical or experimental.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at supplementary activities	0,00
Monitoring and tutoring of the master's thesis	20,00
Presentation and defence of the master's thesis	1,00
Total hours	**21,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Independent preparation of the master's thesis	349,00
Preparation of the master's thesis project	80,00

Total hours	**429,00**

TEACHING METHODOLOGY

The Master's Thesis will be regulated by the Regulations of the University of Valencia for the development of the Master's Thesis approved by the Governing Council of the University on July 2, 2024 and by the instructions issued by the Academic Coordination Committee of the University Master's Degree in Advanced Physics.

The Master's Thesis will be carried out during the second semester, at the beginning of which the Master's management will send instructions and recommendations on its preparation and presentation. It will be the responsibility of the Master's CCA to assign a tutor for the Master's Thesis.

The students carry out a research project by joining a research group. A Master's Thesis Report will be prepared and a public oral presentation and defense of it will be held.

The student, with the approval of the tutor, will present and defend his or her Master's Thesis to a committe for each specialty. The committees will be appointed each academic year by the CCA. The Master's Thesis Report will be deposited through the UV's ENTREU platform.

The CCA of the Master in Advanced Physics recommends that the presentation of the Master's Thesis lasts around 20 minutes and that the debate does not exceed another 20 minutes.

Students may write the Master's Thesis Report and present it in Spanish, Valencian or English.

EVALUATION

The Master's Thesis subject assesses the students' ability to publicly express, communicate and defend the development, results and conclusions of their work in the area of ¿¿Physics.

The assessment of the subject will be based on:

- The Master's Thesis report submitted (50%).
- The presentation and defence of the Master's Thesis (50%).

Regarding the report, the panel will take into account both the content and the formal structure of the report. The following aspects will be assessed.

- The topic is well presented and formulated. The theoretical framework and previous studies are correctly described and updated.
- The objectives are coherent, achievable and realistic.
- The methodology used is appropriate and correctly justified.
- A relevant contribution is appreciated, showing clear evidence of its development.
- The conclusions are a consequence of the work developed.
- The bibliography is adequate, updated and relevant.
- The format and structure includes all sections, there is coherence between them and the development is logical.
- The writing is elegant, error-free and the terminology used is typical and common in the academic field.
- The graphics are self-contained and self-explanatory.
- The length is adequate.

Regarding the presentation and defense, the panel will take into account the following aspects:

- The presentation of ideas is done in a clear, fluid and orderly manner following a logical scheme.
- The ability to synthesize is demonstrated and the presentation is done according to the established time.
- The questions raised by the panel are answered and discussed, demonstrating mastery of the subject.

This evaluation system will be used for both the first and second call.

REFERENCES